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1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

RE: National Wildlife Federation Comments on Draft Chesapeake Bay TMDL

National Wildlife Federation (NWF) applauds the efforts of the United States Environmental Protection Agency to formulate a total maximum daily load (TMDL) under the Clean Water Act (CWA or the Act) for the Chesapeake Bay (the Bay). NWF is grateful for the chance to comment on the Draft Chesapeake Bay Total Maximum Daily Load (Draft TMDL) issued on September 24, 2010. These comments reiterate and follow up on scoping comments we sent on January 8, 2010 prior to the issuance of Draft TMDL.

As with our January 8, 2010 scoping comments, these comments focus on two key points: the failure to adequately incorporate climate change into the Draft TMDL, and the failure to address the legal uncertainty surrounding what in the Chesapeake Bay basin are "waters of the United States" in the wake of the Supreme Court's decisions in *Solid Waste Agency of Cook County v. Army Corps of Engineers*, 531 U.S. 159 (2001) (*SWANCC*), and *Rapanos v. United States*, 547 U.S. 715 (2006). These failures undermine both the legality and the potential efficacy of the Draft TMDL, and unnecessarily place this needed clean up at risk of failure.

This clean-up plan is overdue and must be done properly. NWF has long advocated for the clean-up of the Bay watershed, as it serves as a prized resource to so many of our members and to wildlife. For decades, NWF has participated in efforts to protect the Bay watershed and restore it to its past glory. NWF has affiliate organizations in Virginia, the District of Columbia, Pennsylvania, New York, and Delaware, and currently has a regional office focused almost exclusively on the health of the Bay and its watershed.

This Draft TMDL must be read hand-in-hand with the Obama Administration's commitment to clean up the Bay as part of a coordinated strategy, as outlined in Executive Order (EO) 13,508[1] and the resulting *Draft Strategy for Protecting and Restoring the Chesapeake Bay*,

[1] *Exec. Order 13,508 of May 12,* 2009, 74 Fed. Reg. 23,099 (May 15, 2009) (hereinafter EO 13,508).

developed by the Federal Leadership Committee for the Chesapeake Bay and issued on November 9, 2009 (*Draft Bay Strategy*). As President Obama's EO states, "The Chesapeake Bay is a national treasure constituting the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world."[2] But few resources have been hit so hard by human activity. The Bay's immense watershed – approximately 64,000 square miles over six states and the District Columbia – has seen staggering population growth over the years and now houses about 17 million people. Resulting agricultural, urban, and industrial activities have polluted and impaired the Bay and its watershed, placing its wildlife at risk, endangering public health, and drastically diminishing the once astounding commercial shellfisheries and fisheries that have defined this region.

Much of the pollution imperiling the Bay comes from activities occurring miles from the Bay itself, along the more than 100,000 streams, creeks, rivers and accompanying wetlands that converge to form and replenish this mighty resource. Climate change makes clean-up and restoration efforts ever the more urgent. Sea-level rise, increased storm intensity, changes in weather patterns, warmer temperatures, and the other challenges climate change will bring makes it imperative that the Bay be restored and protected to allow for its natural functions to provide the type of pollution controls and quality habitat that will allow for the Bay to again flourish.

These challenges must be addressed forcefully by the TMDL. Climate change presents imminent challenges that are new and unprecedented. It means that past data on weather and climate events are no longer reliable indicators of what is to come. As such, the Draft TMDL must use modeling that looks forward and accounts for climate change. To the extent uncertainty surrounds such analysis, an explicit margin of safety must be built into the final TMDL. A failure to do this will mean that pollution limits in the TMDL will not be adequate to clean up the Bay, even if they would have been adequate under historic weather patterns.

Additionally, for successful clean up to occur under the TMDL, it is necessary for the Act to apply to all the important waters in the Bay's watershed. This is especially true since an important clean-up strategy of the Draft TMDL is to expand use of the NPDES permitting throughout the watershed. Such efforts may be undermined – as have CWA permitting implementation and enforcement actions nationwide – unless EPA establishes clear protections for all the waters in the Bay and the 92 subwatersheds identified by the Draft TMDL. As such, we believe that EPA should, must, and can assert categorical Clean Water Act jurisdiction over all important headwaters and geographically isolated waters in the region of the Bay's watershed.

I. Clean Water Act Overview.

The Clean Water Act was passed by Congress in 1972 to "restore and maintain the chemical, physical, and biological integrity of Nation's waters." 33 U.S.C. § 1251(a). To achieve the Act's goal of eliminating the discharge of pollutants into waters of the United States,

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[2] 74 Fed. Reg. 23,099 (May 15, 2009).

Section 303 of the Act requires that each state establish "ambient water quality standards" (WQS) at levels necessary to protect the "public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act." 33 U.S.C. § 1313(a)-(c). To further achieve the Act's goals, Congress set up a comprehensive scheme of programs and regulations. Chiefly, Congress prohibited the discharge of pollutants from point sources into waters of the United States, unless such discharges are permitted under the Act. 33 U.S.C. § 1311(a). Congress set up two primary permitting programs to regulate point source discharges: Section 402, administered by the Environmental Protection Agency (EPA) and delegated states, which regulates the discharge of wastewater pollutants; and Section 404, administered by the United States Army Corps of Engineers (Corps) and delegated states, which regulates the discharge of dredge and fill materials into jurisdictional waters. 33 U.S.C. §§ 1342 and 1344.[3] WQS help establish criteria and limitations under these two permitting programs.

WQS consist of the designated uses of the water involved, the water quality criteria based upon such uses (both numeric and narrative criteria), and antidegradation requirements. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. §§ 130.2(d), 130.7(b)(3). EPA must review the state's proposed WQS. If the Administrator determines that the WQS meet the requirements of the CWA, she shall approve them. Otherwise, she shall notify the states that they do not meet the requirements of the Act and specify changes that will meet the Act's requirements. If the state fails to adopt such standards after 90 ninety days of notification from EPA, EPA must promulgate standards for waters within the State. 33 § U.S.C. 1313.

States must also assess impairments to their waters (i.e. failure to meet WQS), and determine the cause of such damage. One cause of water impairment is the presence of pollutants that occurs when effluent limitations and other pollution control requirements are not stringent enough to implement any WQS applicable to such waters. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b)(1). Thus, impairments exist where effluent limitations and other pollution control requirements are not stringent enough to implement any one of the three components of a WQS, whether it be the designated uses, water quality criteria (numeric or narrative), or antidegradation requirements of the WQS. *Cf. PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700, 715 (1994) ("a project that does not comply with a designated use of the water does not comply with the applicable water quality standards"). The CWA defines the term "pollutant" broadly. 33 U.S.C. § 1362(6).

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[3] All six of the states in the Chesapeake Bay watershed have been delegated permitting authority under Section 402 of the Act. The District of Columbia has not been delegated such authority. U.S. Environmental Protection Agency, *State NDPES Program Authority, available at* http://www.epa.gov/npdes/images/State_NPDES_Prog_Auth.pdf (last visited Nov. 1, 2010). However, none of those states have been delegated Section 404 permitting authority, meaning that the Corps administers Section 404 permits for applicable discharges into waters in those states. U.S. Environmental Protection Agency, *State or Tribal Assumption of the Section 404 Permit Program, available at* http://www.epa.gov/OWOW/wetlands/facts/fact23.html (last visited Nov. 1, 2010).

For impaired waters, states shall establish, in accordance with a priority ranking given to impaired waters by the states, TMDLs for pollutants identified by EPA under Section 304(a)(2) of the Act. 33 U.S.C. § 1313(d)(1). Phosphorous, nitrogen and sediment are all pollutants identified by EPA as requiring TMDLs.[4] The Chesapeake Bay and many of the waters that comprise its watershed have been listed as "impaired" by the states in the Bay basin.[5] As the Draft TMDL states, these impairments "cause algae blooms that consume oxygen and create 'dead zones' where fish and shellfish cannot survive, block sunlight that is needed for underwater grasses, and smother aquatic life on the bottom."[6] Such "high levels of nitrogen, phosphorous, and sediment enter the water from agricultural operations, urban and suburban runoff, wastewater facilities, air pollution and other sources, including septic systems."[7]

Generally, formulation of TMDLs is the primary responsibility of the states, with required oversight and approval from EPA. 33 U.S.C. § 1313(d). However, in the case of the Chesapeake Bay, where multiple state jurisdictions are involved, EPA has taken the lead in establishing the TMDL, which will be the "largest and most complex" TMDLs ever established of the approximately 40,000 completed since the passage of the CWA.[8]

For the current Chesapeake Bay TMDL, EPA Region III has taken primary responsibility and is coordinating the process with the six Bay basin states (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia) and the District of Columbia, with EPA Region II, which has jurisdiction over New York, and with parties that are members of the Chesapeake Bay Program and other stakeholders.[9] EPA will take ultimate responsibility in working to implement a multi-state, multi-regional TMDL to bring the Bay into water quality compliance for nitrogen, phosphorous, and sediment.[10] The Bay TMDL will be the most extensive of its kind, addressing 92 impaired Bay and tidal tributary segments.[11]

In order to determine the load allocations for each specific river segment, EPA had to first determine the total nutrient loads allocated to each jurisdiction that is needed in order to improve the water quality of the Bay.[12] EPA then required each of the seven jurisdictions to develop a draft Watershed Implementation Plan (WIP) that would determine the allocations for each segment of each waterway within their jurisdiction. The jurisdictions had to determine how much of each nutrient to allocate to point sources and non-point sources under the WIPs. EPA

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[4] *See* 74 Fed. Reg. 47,792-94 (Sept. 17, 2009) (describing various impairments of the Bay and its tributaries); Draft TMDL at Executive Summary (ES) iv.

[5] *Id.*; Draft TMDL at ES iii.

[6] Draft TMDL at ES iii.

[7] *Id.*

[8] *Id.* at ES iv.

[9] 74 Fed. Reg. 47,792, 47,793 (Sept. 17, 2009); Draft TMDL at Sec. 1. This TMDL is also being developed pursuant to the requirements of consent decrees in *American Canoe Association v. EPA*, and *Kingman Park Civic Ass'n, et al. v. U.S. EPA*, as well as EO 13,508, Draft TMDL at 1-14 – 1-15.

[10] *See* Draft TMDL, Sec. 1.

[11] *Id.* at ES iv; Draft TMDL at §9 at 9-2 – 9-20, tbls 9-1 – 9-3.

[12] Draft TMDL, ES, iv.

reviewed the states' WIPs to determine whether or not the WIPs could achieve the requirements EPA needs in order to achieve a healthy Bay by 2025. Upon review, EPA discovered that, to varying degrees, all jurisdictions fell short of EPA requirements.[13] To the extent jurisdictions fell short of the requirements needed for clean up, EPA instituted backstop allocations for each jurisdiction,[14] and, in fact, included controls for a full backstop allocation.[15] A backstop allocation is the pollution controls that will be put in place should a state's WIP fall short of the needed controls. The backstops mostly focus on point source pollution.[16] In cases where the state's WIP was weaker than the backstop allocation, the states have the chance to revise their WIP by November 29, 2010.[17] In cases where the state's WIP was stronger than the backdrop allocation, the state's WIP was utilized. If, after revision, a state WIP fails to meet the protection levels of the backstop allocation, the federal backstop allocation will be utilized in the final TMDL.[18]

Multi-state TMDLs provide an important tool for ensuring that upstream states are protective of the water quality downstream of their borders. Like other TMDLs, multi-state TMDLs often determine whether permits for discharges may be issued and what effluent limitations apply to such permits, further setting limits on pollutants and, if implemented properly, moving a water body towards health. In particular, under the National Pollution Discharge Elimination System (NPDES) permit program of Section 402 of the CWA, which covers discharges from many point sources,[19] "permit effluent limits must be written consistent with the assumptions and requirements of the wasteload allocations in an EPA-approved TMDL."[20] EPA's plan to expand NPDES permitting to achieve water quality compliance in the Bay will likely fail unless TMDL accounts for the reality of climate change and EPA provides clarity to the legal uncertainty regarding the current scope of CWA protections within the Bay's watershed.

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[13] DC and Maryland were given minor-level backstop allocations; Virginia was given moderate-level backstop allocations; and New York, Pennsylvania, Delaware and West Virginia were given high-level backstop allocations. Draft TMDL, ES, ix-xii.

[14] Draft TMDL, ES, iv.

[15] Draft TMDL, ES, vi.

[16] Draft TMDL, ES, ii. Backstop measures include specific load requirements for wastewater treatment plants; Municipal Separate Storm Sewer System (MS4) requirements include 50% of urban lands to meet an aggressive performance standard through retrofit, 50% of non-regulated lands be redesignated to be as regulated; erosion and sediment control on lands subject to construction permits; increased control at CAFO operations, adjustments to agriculture non-point sources; finer scale wasteload and load allocations in the same level of detail as tidal states. Draft TMDL, ES, ix-xii.

[17] Draft TMDL, ES, ii.

[18] Draft TMDL, ES, ii.

[19] Point source discharges of dredged and fill material into waters of the United States must be permitted under Section 404 of the Act. Section 404 also requires, *inter alia*, that permitted discharges of dredged and fill material not "[c]ause[] or contribute[] … to violations of any applicable State water quality standard." 40 C.F.R. § 230.10(b)(1).

[20] 74 Fed. Reg. 47,792, 47,793 (citing 40 C.F.R. § 122.44(d)(1)(vii)(B)).

II. The Draft TMDL Fails to Properly Account for Climate Change and Fails to Assure CWA Jurisdiction Applies to All Important Waters throughout the Bay.

TMDLs are defined as "[t]he sum of the individual W[aste] L[oad] A[llocation]s for point sources and L[oad] A[llocation]s for nonpoint sources and natural background." 40 C.F.R. § 130.2(i). Wasteload allocations (WLA) are defined as "[t]he portion of a receiving water's loading capacity that is allocated to one of its existing or *future* point sources of pollution. WLAs constitute a type of water quality-based effluent limitation." 40 C.F.R. § 130.2(h) (emphasis added). Load allocations (LA) are defined as "[t]he portion of a receiving water's loading capacity that is attributed either to one of its existing or *future* nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished." 40 C.F.R. § 130.2(g) (emphasis added). For pollutants other than heat, "TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS with seasonal variations *and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality*. Determinations of TMDLs shall take into account critical conditions for stream flow, loading, and water quality parameters." 40 C.F.R. § 130.7(c)(1) (emphasis added). The Draft TMDL reiterates that the margin of safety "can be provided implicitly by applying conservative analytical assumptions or explicitly by reserving a portion of loading capacity."[21] The Draft TMDL further states that "[i]n a TMDL, where there is uncertainty, an explicit MOS is appropriate."[22]

Thus, TMDLs account for point source loading (WLAs), non-point source and natural background sources (LAs), and a margin of safety (MOS) along with accounts for seasonal variations. As such, in order for a TMDL to be a successful tool in achieving clean-up, the allocations must properly account for all current and future sources and consider all impacts on water quality.

Despite our scoping comments urging EPA to address these issues in the Draft TMDL, two critical issues – climate change and CWA jurisdiction – remain improperly addressed or unaddressed. Successfully addressing these issues is integral for protecting and restoring the Bay, and for ensuring the final TMDL is in compliance with requirements of the CWA.

As EPA has noted, and as is described in both EO 13,508 and the *Draft Bay Strategy*, science is clear that climate change will increase pollutant loading to waters in the Bay's basin due to more intense storm events, more destructive storm surges and increased erosion from sea level rise, and will exacerbate the negative impacts of existing pollution by increasing biological activity that feeds on nutrients in water, depleting oxygen and enlarging dead zones. Therefore,

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[21] Draft TMDL at § 1.1, 1-2 – 1-3.
[22] *Id.* at § 6.4.2, 6-48.

the impacts of climate change must be accounted for in the TMDL or the TMDL targets will fall short of what is required for clean-up.

Additionally, due to two Supreme Court decisions, *SWANCC*[23] and *Rapanos*,[24] as well as subsequent agency guidance, CWA jurisdiction over certain waters, particularly many of the important headwater streams and wetlands, and geographically isolated waters that are so vital to the health of the Bay, is in doubt. The current case-by-case approach for asserting CWA jurisdiction over many waters set forth by the Corps and EPA in the 2007 Guidance provides neither consistency nor certainty regarding protection for many waters in the Bay's watershed. Without such certainty, it will be difficult to accurately ascertain sources of WLAs and LAs, to properly allocate loads, and implement permitting programs pursuant to such allocations. Thus, successful implementation of the TMDL depends on clarity regarding the scope of CWA jurisdiction throughout the Bay's basin. As is explained below, NWF believes that EPA can – and must – assert categorical jurisdiction over headwater streams and wetlands, and geographically isolated waters in the Bay to provide the certainty and protections needed to make the TMDL a legal and useful tool for restoring the Bay back to health. Such assertion of watershed-wide jurisdiction will also be consistent with the *Draft Bay Strategy* that seeks to achieve protection and restoration objectives by taking a watershed-wide approach.

A. *The Draft TMDL Fails to Properly Account for the Polluting Impacts of Climate Change on the Bay.*

Science is clear that climate change will greatly impact water quality. It will both increase pollutant loading to waters and make existing pollution problems more acute. Thus, current assumptions about pollutant loading will not hold true in the near future unless they account for the impacts of climate change. This is especially true of the Bay, which faces a host of threats from climate change that will increase nutrient and sediment loading, and make the harmful effects of the those pollutants more severe. As such, the TMDL must account for the pressing reality of climate change and how it will impact pollutant loading into the Bay and its watershed.

EPA has put forth a goal to "adapt implementation of core water programs to maintain and improve program effectiveness in the context of a changing climate."[25] EO 13,508 additionally mandates that lead agencies such EPA "assess the impacts of a changing climate on the Chesapeake Bay and develop a strategy for adapting natural resource programs and public

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[23] *Southern Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159 (2001).

[24] *Rapanos v. United States Army Corps of Engineers*, 547 U.S. 715 (2006).

[25] U.S. Environmental Protection Agency, Office of Water, *National Water Program Strategy: Response to Climate Change* (hereinafter "*National Water Program Climate Strategy*"), EPA 800-R-08-001 (September 2008) at 23.

infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed."[26]

EPA has acknowledged that climate change will cause several alarming threats to water quality such as shorelines moving as a result of sea level rise, changes to ocean chemistry that alter aquatic habitat and fisheries, warming water temperatures that change contaminant concentrations in water and alter aquatic system uses, new patterns of rainfall and snowfall that alter water supply for drinking and other uses and lead to changes in pollution levels in aquatic systems, and more intense storms that threaten water infrastructure and increase polluted stormwater runoff.[27] Specifically, EPA has concluded that "[t]he number of waters recognized as 'impaired' is likely to increase, even if pollution levels are stable."[28] This is largely because warmer temperatures will lead to warmer water, which holds less oxygen, and can foster harmful algal blooms and increase the toxicity of some pollutants.[29] Similarly, EPA has found that more extreme water-related events, such as increased and more intense storms, will have negative water quality impacts by causing more intense flooding and other events that result in high flows, increased sediment and erosion, and a resulting increase in nutrients, pathogens, and toxins entering waterbodies.[30]

Temperature increases will also change aquatic biology, disrupting aquatic system health and often resulting in the establishment of invasive and non-indigenous species in certain waters at the expense of native species.[31] As EPA has determined, this alone may "result in significant deterioration of aquatic ecosystem health in some areas."[32] Indeed, existing permitted infrastructure may prove less effective in dealing with water quality problems in the face of climate change. Given the above threats caused by climate change, EPA has concluded that existing treatment systems already permitted under the Clean Water Act, such as waste treatment systems, municipal stormwater systems, and combined sewer overall flow systems, may be overwhelmed by changes caused by climate change.[33] Additionally, climate change will displace shore lines, change flow rates in streams and lakes, change the size of streams and wetlands, and result in other disruptions relating to the flow, quantity, and presence of water in many of our waters.[34]

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[26] 74 Fed. Reg. at 23,100.
[27] *National Water Program Climate Strategy*, at ii.
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Id.* at ii-iii.
[32] *Id.* at iii.
[33] *See National Water Program Climate Strategy* at 13 ("water quality changes may be observed in the future as a result of overloading the capacity of water and wastewater treatment plants during extreme rainfall") (quotations and citation omitted).
[34] *Id.* at ii.

The impacts of climate change on the Chesapeake Bay have been well documented. For instance, the Federal Leadership Committee for the Chesapeake Bay, of which EPA is a member, has found in its *Draft Bay Strategy* that

> available information is sufficient to begin adapting to and mitigating the most [climate change] impact scenarios and to raise awareness among policy makers and the public. Impacts to the Bay and watershed are expected as a result of sea-level rise; increases in water temperature, acidity, and salinity; and changing rainfall patterns and increases in rainfall intensity. Many of the region's urban centers and significant ecosystems are in low-lying areas that are particularly vulnerable to sea-level rise and storm surge. The impacts of climate change extend to infrastructure, habitat, fish and wildlife populations, stream flow, water quality and valued Bay landscapes and waters. Climate change threatens past restoration gains and the effectiveness of future actions to protect and restore the Chesapeake Bay and its watershed.[35]

Further, the report produced under Section 202(d) of EO 13,508, describes the water quality and other impacts of climate change "on the Chesapeake Bay and its watershed resulting from sea-level rise, increases in temperature, acidity, and salinity, and changing rainfall patterns and increases in rainfall intensity."[36] For example, the report notes that as both ambient and water temperatures increase with climate change, "the concentrations of dissolved oxygen in the Chesapeake Bay, its tributaries, and upland streams [will] decrease," which "may have a significant effect on water quality."[37] Further, the report finds that "[c]limate change will impact ecosystem functions related to water quality such as denitrification and sediment storage," and that increased precipitation variability and intensity, and associated increases in stream flow and erosion, will increase nutrient and sediment loads and "will have profound effects on river discharge, nutrient loadings, Bay productivity, and dissolved oxygen levels, ultimately affecting all or most ecosystems in what are now 'designated use' areas within Chesapeake Bay."[38] Accordingly, the report concludes that "*due to the potentially significant impacts from climate change, resource managers should err on the side of being more aggressive when establishing restoration and conservation goals*" and recommends that agencies "*[a]ssess climate impacts on*

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[35] *EO 13,508: Draft Strategy for Protecting and Restoring the Chesapeake Bay* (hereinafter "*Draft Bay Strategy*") (November 9, 2009) at 21-2.

[36] *Responding to Climate Change in the Chesapeake Bay Watershed: A draft report fulfilling Section 202(d) of Executive Order 13,508* (hereinafter "*Bay Climate Change Report*") (November 19, 2009) at 7; *see generally id.* at 6-21.

[37] *Id.* at 13.

[38] *Id.* at 15-16.

water quality restoration program priorities (e.g., Total Maximum Daily Load assessments and Tributary Strategies)."[39]

Following from these well-documented findings, the *Draft Bay Strategy* sets forth as an initiative "[u]ndertak[ing] a concerted effort to coordinate climate change science and adaptation throughout the watershed," under which it concludes that "[l]inking science with management is essential for making the decisions today about potential impacts on water quality and related plans to meet the Bay TMDL and that will increase resiliency of Bay communities and habitats to future climate change impacts."[40] As stated above, EO 13,508 places an additional mandate on agencies such as EPA to assess climate change impacts on water quality and to develop a strategy to adapt to such impacts.

Other evidence also clearly indicates that in order to achieve water quality standards in the Bay, the TMDL must account for climate change impacts. Several studies, including those by the State of Maryland Commission on Climate Change and the Chesapeake Bay Program's Science and Technical Advisory Committee, have concluded that for the Chesapeake Bay and coastal ecosystems, "[i]ncreased winter-spring runoff [due to climate change] would wash more nutrients into the Bays and higher temperatures and stronger density stratification in the estuaries would tend to exacerbate water quality impairment."[41] As such, the Maryland Commission on Climate Change's study and other studies have concluded that "nutrient loads would have to be reduced beyond current targets to achieve water quality requirements."[42] Studies have additionally determined that "[v]ery significant changes are also likely to occur that affect sediment delivery and sedimentation in the estuaries, but are difficult to quantitatively predict. These include potential increases in sediment load from rivers as a result of increased runoff and more erosive extreme discharge events, including those caused by hurricanes, and from shoreline and wetland erosion as a result of accelerated sea-level rise."[43]

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[39] *Id.* at 16, 32 (emphasis added).

[40] *Draft Bay Strategy* at 43.

[41] Maryland Commission on Climate Change, *Climate Change Action Plan* (Aug. 2008) at Exec. Sum. p.15; *see also* Pyke, C. R., et al, *Climate Change and the Chesapeake Bay: State-of-the-Science Review and Recommendations* (Sept. 2008), at 5 ("[w]arming and greater winter-spring streamflow will increase hypoxia"); Najjar, R.G., et al, *The potential impacts of climate change on the mid-Atlantic coastal region*, CLIMATE RESEARCH, 14: 219–233 (2000), at 225-226; Boesch, D.F., et al, Coastal Dead Zones & Global Climate Change: Ramifications of Climate Change for Chesapeake Bay Hypoxia (Dec. 2007), *available at* http://www.pewclimate.org/docUploads/Regional-Impacts-Chesapeake.pdf at 11 (last visited Nov. 1, 2010) ("many of the anticipated changes (increased streamflow, warmer temperatures, calmer summer winds, and increased depth due to sea-level rise) [caused by climate change in the Chesapeake] would move the ecosystem in the direction of worsening hypoxia").

[42] *Climate Change Action Plan,* at Exec. Sum. p.15; *see also* Boesch, at 11 ("If the bay does face these anticipated changes [(increased streamflow, warmer temperatures, calmer summer winds, and increased depth due to sea-level rise)], nutrient loads would have to be reduced further – beyond current targets – to meet the water quality objectives needed to support living resources.").

[43] *Climate Change Action Plan*, at Exec. Sum. p.15.

Despite this overwhelming evidence regarding the impacts of climate change on water quality in the Bay, EPA has failed to meaningful incorporate climate change considerations into the Draft TMDL. Indeed, the Draft TMDL admits this shortcoming: "The potential effects of climate change have not been explicitly accounted for in the current Bay TMDL beyond application of the 10-year hydrologic period because of staff resource and time constraints and known limitations in the current suite of Bay models to fully simulate the effects of climate change."[44]

The Draft TMDL fails to incorporate climate change in two important ways. First, its hydrologic modeling uses data from two decades ago, rather than looking forward to project how climate change will impact future conditions in the Bay. Second, the Draft TMDL does not account for uncertainty regarding climate changes impacts on conditions in the Bay in the MOS.

The Draft TMDL uses hydrologic data from the years 1991-2000. This data purports to represent "the period that is representative of typical conditions for the waterbody," "the critical conditions, or the selection of a set of years that represent the range of conditions affecting attainment of the Bay WQS," and "the seasonal variation in water quality conditions and the factors (temperature, precipitation, wind, and such) that directly affect those conditions."[45] Moreover, this data is considered to be the "period that represents the long-term hydrologic conditions for the waterbody,"[46] and should "ensure[] that the balance between high and low river flows, the resultant point and nonpoint source loadings areas across the Bay watershed and Bay tidal waters are appropriate."[47] This data additionally accounts for projections of future wind, rainfall, streamflow, temperature, sunlight, and seasonal variations.[48]

However, as a recent draft report has found, past hydrologic data is unlikely to properly account for the impacts of climate change and is unlikely to accurately represent future conditions. Thus, data from 1990s is not likely an accurate gauge for Bay conditions over the next decade. In this draft report, *A Method to Assess Climate Change Relevant Decisions: Application in the Chesapeake Bay*, EPA acknowledges that past historical data is no longer going to be reliable in assessing future conditions, stating that "water managers often rely on historical precipitation data, implicitly assuming stationarity or an unchanging climate. Since decision makers can act to ameliorate or exacerbate their vulnerability to climate change, it is critical that they have practical, yet systematic information and tools for identifying and understanding risks and opportunities posed by a dynamic climate."[49] New modeling is needed to look forward and

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[44] Draft TMDL at § 5.11, p.5-41
[45] Draft TMDL at § 6.1, p.6-1.
[46] Draft TMDL at § 6.1, p.6-1 – 2.
[47] *Id.*
[48] *Id.* at § 6.1, p.6-2 – 3.
[49] EPA, *A Method to Assess Climate-Relevant Decisions: Application in the Chesapeake Bay*, DRAFT, (June 2010). Although this report states that it is an External Review Draft and should not be cited, it is ironic that this report, EPA encourages changes based on impending climate change to assist in the adaptation process, yet simultaneously publishes a TMDL that does just the opposite.

predict changes in precipitation, temperature, rainfall intensity, snowmelt and other factors in the Bay that will be influenced by climate change.[50] Further supporting the need for data that incorporates climate change, the Council on Environmental Quality initiated an Interagency Climate Change Adaptation Task Force, which issued a report urging agencies to use a "flexible, forward-thinking approach that moves away from using past conditions as indicators of the future."[51]

The reason proper hydrologic period data is necessary for the TMDL to be both successful and in compliance with the CWA is that it is used to determine WLAs, LAs and MOS.[52] If this data is not representative of future conditions because rainfall, temperature and other conditions over the next decade is not going to mimic conditions from two decades ago – which climate science tells is almost certainly going to be the case – than the limits derived from this data are not going to be protective. This is a serious flaw. It is imperative this flaw be addressed.

Additionally, to the extent there is uncertainty regarding climate change's impact on conditions in the Bay, this uncertainty must be accounted for explicitly in the MOS. As the Draft TMDL states: "In a TMDL, where there is uncertainty, an explicit MOS is appropriate."[53] However, the MOSs mentioned in the TMDL – an "implicit" one for nutrients reflected in data from the 1990s supposedly reflective of high rainfall years, and an explicit one for sediment – do not account for climate change. The MOS must do so. And do so explicitly.

In finalizing the Chesapeake Bay TMDL, EPA must use modeling that considers currently occurring and predicted future climate change-induced changes in precipitation and other conditions as well as the resulting effect on the magnitude and timing of runoff, increased pollutant loads flushed into waters from failing or overwhelmed waste management systems, altered water temperature, altered flow regimes, and altered water levels, including sea-level rise. EPA must consider these climate change-related impacts in the establishment of WLAs, LAs, the overall loading capacity, seasonal variation analysis, critical conditions analysis, and explicitly incorporate any uncertainty into the establishment of the MOS. Consequently, CWA permits, issued for discharges of pollutants covered by the TMDL into Bay basin waters, must have effluent limits designed to meet WLAs that account for climate change. Similarly, nonpoint source cleanup programs should account for climate change impacts on water quality and be

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[50] EPA, *A Method to Assess Climate-Relevant Decisions: Application in the Chesapeake Bay*, DRAFT, (June 2010). Although this report states that it is an External Review Draft and should not be cited, it is ironic that this report, EPA encourages a hard look at climate change to assist in the adaptation process, yet simultaneously publishes a TMDL that does just the opposite.

[51] White House Council on Environmental Quality, *Progress Report of the Interagency Climate Change Adaptation Task Force: Recommended Actions in Support of a National Climate Change Adaptation Strategy*, 25 (October 5, 2010).

[52] *See* Draft TMDL §6.2.3 6-11—6-12; *see also* Draft TMDL, Appendix F, Determination of the Hydrologic Period for Model Application.

[53] *Id.* at § 6.4.2, p.6-48.

designed to ensure water quality in light of the challenges presented by a warming world. Only by incorporating climate change in this manner into the final TMDL, will it be properly protective of the Bay and in compliance with the requirements of the CWA.

B. *EPA Must Protect All Waters in Chesapeake Bay Basin in Order for the TMDL to be Effective.*

Prior to 2001, it was clear that the CWA protected all important waters within the aquatic ecosystem, including the many small intermittent and ephemeral streams and their associated wetlands that eventually converge to form the Chesapeake Bay. Today, due in large part to two Supreme Court decisions, *Rapanos* and *SWANCC,* as well as subsequent EPA and Corps guidance documents, those protections are no longer assured. In order to be able to ensure effective clean-up of the Bay, and to establish meaningful allocations, particularly among WLAs and LAs in the TMDL, EPA must assert categorical protections over all important waters in the Bay. EPA can—and must—categorically protect all headwater streams and wetlands in the Bay's basin, as well as geographically "isolated" waters in the Bay's basin.

President Obama has set out clear objectives for EPA and other agencies to "establish a clear path to meeting, as expeditiously as practicable, water quality and environmental restoration goals for the Chesapeake Bay." President Obama has furthermore explicitly instructed EPA to "us[e] Clean Water Act tools, including strengthening existing permit programs and *extending coverage where appropriate*" in order to clean up and restore the Bay.[54] Thus, EPA has already been directed to appropriately extend CWA jurisdiction throughout the Bay's basin. As such, EPA must restore CWA protections for Bay watershed wetlands and non-navigable tributaries historically covered under the Act. As detailed below, NWF believes that this can be done in a manner that establishes certain CWA jurisdiction over most of the important waters throughout the Bay's watershed. Failure to do so threatens to seriously hamper the effectiveness of the TMDL.

1. The Supreme Court and Clean Water Jurisdiction.

The Supreme Court has heard three major cases concerning what waters fall within the CWA's jurisdictional definition of "navigable waters," defined broadly as "waters of the United States."[55] The first time the Supreme Court considered the question of what constituted "waters of the United States" was in *United States v. Riverside Bayview Homes, Inc.*, where the Court affirmed the broad jurisdiction of the CWA by finding the Corps properly regulated wetlands adjacent to a traditionally navigable water.[56] Sixteen years later, in *SWANCC*, the Court decided that certain ponds in northern Illinois were not covered under the Act when jurisdiction was

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[54] 74 Fed. Reg. at 23,101-02 (emphasis added).

[55] 33 U.S.C. § 1362 (7).

[56] *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 (1985). Also, in *International Paper Co. v. Ouellette*, the Court affirmed the Act protected "virtually all bodies of water." 479 U.S. 481, 492 (1987).

based solely on the ponds' use by migratory birds.[57] The *SWANCC* decision was narrow and it did not overturn any regulatory provision. Most recently, the Court heard *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (consolidated as *Rapanos v. United States*) in 2006.[58] *Rapanos* concerned wetlands adjacent to non-navigable tributaries of traditionally navigable waters. The decision in *Rapanos* was a 4-1-4 split that failed to resolve much. While a majority voted to remand the cases back to the lower court for further review, there were divergent and contradictory rationales for what standard the lower court should apply.

Justice Scalia, writing for the plurality, found the Act's coverage included "those relatively permanent, standing or continuously flowing bodies of water" and "*only* those wetlands with a continuous surface connection to [other regulated waters]."[59] Justice Scalia's test and rationale was rejected by a majority of the Court. Justice Stevens, writing for a four-member dissent, deferred to the Corps' current categorical regulation of all tributaries and their adjacent wetlands.[60] Justice Kennedy, in a solo concurring opinion, found that for jurisdiction to attach to wetlands adjacent to certain non-navigable tributaries, a showing needed to be made that such waters have a "significant nexus" to traditionally navigable waters.[61] Importantly, in recognition of the vital ecological functions wetlands perform, Justice Kennedy wrote that wetlands that either individually or collectively impact the chemical, physical, or biological integrity of other navigable waters have the requisite "significant nexus" to be regulated under the Clean Water Act.[62]

None of the Circuit Courts with jurisdiction over Bay states have yet addressed the question of what constitutes "waters of the United States" after *Rapanos*. However, prior to *Rapanos* but after *SWANCC*, the Fourth Circuit affirmed broad protections for headwater wetlands and the entire tributary system of navigable waters in two decisions, *Treacy v. Newdunn*[63] and *United States v. Deaton*.[64] Since *Rapanos*, the Federal District Court for the Eastern District of Virginia in *Precon Development Corp. v. United States Army Corps of Engineers* found that, under the Kennedy test, a wide array of factors such as water storage, flow attenuation, and flood synchronization; biogeochemical processes; carbon sequestration; denitrification; pollutant removal and retention; and wildlife and habitat considerations can be used to support a finding that a water has a significant nexus to downstream navigable waters.[65]

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[57] 531 U.S. 159 (2001).

[58] *Carabell v. U.S. Army Corps of Engineers*, 391 F.3d 704 (6th Cir. 2004), *cert. granted*, 126 S. Ct. 415 (2005); *United States v. Rapanos*, 376 F.3d 629 (6th Cir. 2004), *cert. granted*, 126 S. Ct. 414 (2005). The Court decided both cases in *United States v. Rapanos*, 547 U.S. 715 (2006).

[59] *Rapanos*, 547 U.S. at 739, 742 (emphasis in original).

[60] *Id.* at 787, 809-10 (Stevens, J., dissenting).

[61] *Id.* at 782 (Kennedy, J., concurring).

[62] *Rapanos*, 547 U.S. at 779.

[63] 344 F.3d 407 (4th Cir. 2003), *cert. denied*, 541 U.S. 972 (2004).

[64] 332 F.3d 698 (4th Cir. 2003), *cert. denied*, 541 U.S. 972 (2004).

[65] 2009 WL 3156685, *11 (E.D. Va. 2009). This case is currently on appeal to the Fourth Circuit Federal Court of Appeals.

The court in *Precon* also found that "the Corps is not legally bound by agency guidance documents" and that in aggregating impacts for the purpose of asserting jurisdiction over wetlands pursuant to the Kennedy test, "the scope of the review area is not limited by stream order determinations," but can include similarly situated wetlands in the "region."[66]

2. EPA and Corps Response to *SWANCC* and *Rapanos*.

Under the previous Administration, the EPA's and Corps of Engineers' response to *SWANCC* and *Rapanos* was unwarranted legally and not protective of important resources. After *SWANCC*, EPA and the Corps put out guidance as part of an Advance Notice of Proposed Rulemaking (ANPRM) to redefine jurisdiction under the Act.[67] The proposed rulemaking was dropped in December of 2003 after more than forty states, countless conservation organizations, including several hunting and fishing groups, and 220 members of Congress commented in overwhelming favor of keeping the current and broadly protective rules.[68] However, the harmful guidance (the 2003 Guidance) that was part of the ANPRM was never rescinded. The 2003 Guidance fails to protect so-called "isolated" wetlands and waters.

The response to *Rapanos* by EPA and the Corps was similarly troubling. In 2007, the Corps and the EPA issued *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in* Rapanos v. United States & Carabell v. United States on June 5, 2007 (the 2007 Guidance).[69] The 2007 Guidance is harmful in several respects. It removes protection for certain tributaries, and makes it extremely difficult to protect many others, particularly intermittent and ephemeral headwater streams. Similarly, it makes it very difficult to protect many of the important wetlands that neighbor such streams and tributaries. Instead, it sets up an unpredictable, inconsistent and cumbersome process for determining the jurisdictional status of many waters on a case-by-case basis that provides little clarity over what waters are or are not covered within a major watershed like that of the Chesapeake Bay. While the current directives have not been formally abandoned, they are flawed and illegal in several respects and need not bind or guide EPA or the Corps.

3. EPA Has Primary Authority to Protect Waters under the CWA and May Categorically Protect Important Waters in the Bay's Watershed.

Under the CWA, jurisdictional determinations are the responsibility of EPA. EPA must therefore act upon its duty to ensure all jurisdictional determinations are made in accordance

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[66] *Id.* at *10-*11.

[67] *See Advance Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States"*, 68 Fed. Reg. 1991 (Jan. 15, 2003).

[68] *Rapanos*, 547 U.S. at 795 n.4 (Stevens, J., dissenting); Letter from 220 Members of Congress to The Honorable George W. Bush, President of the United States (Nov. 24, 2003).

[69] U. S. Environmental Protection Agency and U.S. Army Corps of Engineers, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in* Rapanos v. United States & Carabell v. United States (June 5, 2007), *available at*, http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf (last visited Nov. 1, 2010), noticed at 72 Fed. Reg. 31,824 (June 8, 2007).

with, and to the fullest extent permitted by, the law. This charge, as stated above, is reiterated in EO 13,508. While the Act gives primary permitting authority to the Corps for Section 404 permits,[70] ultimate authority for protection of all waters rests with EPA. This was the conclusion of Attorney General Civiletti in 1979, where he found that "the structure and intent of the Act support an interpretation of § 404 that gives the Administrator the final administrative responsibility for construing the term 'navigable waters.'"[71] It is, therefore, EPA's responsibility to determine whether waters are jurisdictional under the Act.

As described below, current law allows EPA to categorically protect many if not all of the important waters in the Bay.[72] As stated above, the EPA need not adhere to the illegal 2007 Guidance and should dismiss its restrictive and confusing approach to determining jurisdiction. Primarily, the 2007 Guidance allows little meaningful region-wide aggregation of similar aquatic resources to determine that, cumulatively, such resources have a "significant nexus" to other waters. For instance, the 2007 Guidance allows for no aggregation of tributaries' impacts on downstream waters, and only very limited aggregation of wetland impacts. This improper interpretation of *Rapanos* should be dismissed by EPA and has already been dismissed by at least one court with jurisdiction over waters in the Bay's basin.

Instead, as described below, there is ample basis in *Rapanos* for EPA to assert CWA region-wide jurisdiction over the headwater streams and wetlands, and geographically isolated waters of the Bay's watershed. First, current regulations allow EPA to protect all tributaries in the Bay. Second, Justice Kennedy's "significant nexus" test allows EPA to categorically assert protection over the Bay's headwater wetlands. Finally, EPA can protect geographically isolated waters in the Bay under current regulations and the "significant nexus" test in the *Rapanos* opinion.

It is imperative that EPA protect these waters if it plans to achieve water quality in the Bay. A chief strategy in the Draft TMDL for restoring the health of the Bay is to expand the use of NPDES permitting to allow for stronger controls on pollution sources. One tool for doing this, for instance, is the use of Residual Designation Authority under Section 402(p) of the CWA to require permits for currently unpermitted stormwater point source discharges.[73] NWF supports this approach, but the reality of the current legal situation is that enforcement and

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[70] 33 U.S.C. § 1344(a).

[71] 43 U.S. Op. Atty. Gen. 197, 200-202 (Sept. 5, 1979) (footnote references omitted).

[72] Despite this authority, Congress must provide certainty nationwide that all important waters remain protected by the Clean Water Act. Due to the hydrological nature and more humid conditions of the Chesapeake Bay region, plus the vast studies and documentation of connections between the headwaters of the Bay and the Bay itself, categorical protections by EPA of Bay waters presents a compelling opportunity. While EPA categorical determinations are justified in watersheds across the country, they may be harder to establish in other regions with less documentation and different hydrological conditions. Even in the Bay watershed, without Congressional clarity, asserting CWA jurisdiction over all important waters will involve more resources and more risk of litigation from industry than Congress intended.

[73] Draft TMDL §7.1 at 7-4.

implementation of the CWA permitting programs has been made more difficult and resource intensive as a result of *Rapanos* and *SWANCC*. For instance, an internal EPA memo in March of 2008 indicated that approximately 500 enforcement cases had been dropped, lowered in priority, or faced challenges by defendants due to *SWANCC* and *Rapanos*.[74] The New York *Times* reported in February of 2010 that number had ballooned to 1,500 cases.[75] An April, 2009, EPA Office of Inspector General Report confirmed that enforcement of CWA permit violations has decreased since *Rapanos*.[76]

It is thus naïve for EPA to believe it can expand the number of permitted sources throughout the basin without facing resistance from the regulated community and encountering delays due to the difficulties presented by the current case-by-case jurisdictional determination process for many waters within the basin. EPA's own data indicates that Bay basin states have many waters that are at-risk of not being protected due to the current legal confusion. This includes, for source water protection areas alone, 58 percent of streams in Pennsylvania, 55 percent of streams in Maryland, 57 percent of streams in Virginia, 57 percent of streams in West Virginia, 53 percent in Delaware, and 55 percent in New York.[77]

Much of the pollution entering the Bay comes from areas far from the Bay. For instance, Pennsylvania, which does not even border the Bay, is responsible for 44 percent of the nitrogen entering the Bay.[78] The Susquehanna River, which has headwaters in New York, contributes 33 percent of sediment entering the Bay.[79] Virginia, which contributes water to the Bay from as far away as the small streams of its Western mountains, is responsible for 43 percent of the phosphorous entering the Bay and 41percent of the sediment.[80] Currently unregulated stormwater sources, which the Draft TMDL plans to expand permitting of, accounts for 33 percent of the nitrogen coming from both Pennsylvania and Virginia.[81] It accounts for 50 percent of the phosphorous entering the Bay from Virginia.[82]

The current legal chaos may present difficulties in regulating these sources. It may also present difficulty in enforcing permitting limits for many of the 483 existing significant NPDES permitted facilities, and the 4,236 nonsignificant NPDES permitted facilities. These facilities are

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[74] Memorandum from Granta Y. Nakayama, Assistant Administrator, to Benjamin Grumbles, Ass't Administrator for Water (March 4, 2008).

[75] Charles Duhigg and Janet Roberts, *Rulings Restrict Clean Water Act, Hampering E.P.A.*, NEW YORK TIMES A1 (Mar. 1, 2010).

[76] U.S. EPA Office of Inspector General, *Congressionally Requested Report on Comments Related to Effects of Jurisdictional Uncertainty on Clean Water Act Implementation*, Report No. 09-N-0149, 1 (April 2009).

[77] Analysis of the Surface Water Drinking Water Provided By Intermittent, Ephemeral, and Headwater Streams in the U.S. Completed by U.S. EPA, July 2009.

[78] Draft TMDL § 4.1, 4-1.

[79] Draft TMDL § 4.2, 4-5.

[80] Draft TMDL § 4.1, 4-2—4-3.

[81] Draft TMDL § 4.3, 4-6.

[82] *Id.*

all to be counted among the WLA for the TMDL, but uncertainty over jurisdiction could hinder the enforcement of those limits. Leaving jurisdiction over a substantial portion the Bay's waters to be hashed out over the years on a case-by-case basis is a recipe for failure. The Draft TMDL simply fails to even mention this major concern, and does nothing to address it. This is not permissible legally, and is a major flaw in the Draft TMDL.

Below is detailed the vast importance of headwaters to the Bay's health and bases for protecting these waters so as to get surety of CWA coverage.

4. Bay Watershed Wetlands and Headwater Streams Are Important to the Health of the Chesapeake Bay.

a. *The Chesapeake Bay Watershed Is Comprised Largely of Non-navigable Streams and Associated Wetlands.*

Currently at-risk non-navigable tributaries and associated wetlands comprise a substantial portion of the Bay watershed and have documented significant impacts on the health of the Bay.[83] One hundred and eleven thousand (111,000) miles of creeks, streams, and rivers throughout the Bay watershed converge into fifty major tributaries that send water to the Chesapeake Bay.[84] The Susquehanna River is the Bay's largest tributary and contributes more than one half of the freshwater that enters the Bay.[85] The Susquehanna and its tributaries originate as small headwater streams and wetlands in New York, drain Central Pennsylvania, and empty into the Bay in Maryland. The Potomac and James Rivers are the next two largest tributary systems flowing to the Chesapeake Bay.[86]

Each of these major Bay tributaries begins at their headwaters, far upstream of the traditionally navigable rivers they will become. Headwaters are "the dendritic system of wetlands, swales and small streams that make up the beginnings of most watersheds."[87] Headwater streams[88] comprise the majority of streams and waters in a watershed, and they play

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[83] NWF acknowledges that much of the information cited here to support the importance of these at-risk waters to the health of the Chesapeake Bay was prepared by EPA and others in the wake of the *SWANCC* and *Rapanos* decisions and in several instances should be updated to support EPA categorical protection of wetlands and tributaries of the Bay watershed. Nevertheless, for purposes of these preliminary comments, the information cited here makes a compelling case for such region-wide protection, and additional and updated information compiled by EPA and Bay partner states will as well.

[84] Chesapeake Bay Watershed Partners Agreement (2001); U.S. Environmental Protection Agency, *Chesapeake Bay: Introduction to an Ecosystem,* EPA 903-R-04-003 (July 2004) (*Introduction to an Ecosystem*) at 1, 5.

[85] *Introduction to an Ecosystem* at 5; Draft TMDL § 2.1, 2-1.

[86] *Introduction to an Ecosystem* at 5; Draft TMDL § 2.1, 2-1.

[87] Consolidated EPA Region III Response to the Advanced Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States" (2003) (*EPA Region III ANPRM Response*) at 3.

[88] Headwater streams are typically defined as first and second order streams. Higher order streams are formed by the confluence of lower order tributary streams. *See* Meyer, J. L. et al., *Where Rivers Are Born: The*

the most important role within the watershed in improving water quality by filtering runoff, sediment, nutrients, and contaminants before they move further downstream.[89]

EPA has estimated that first-order headwater streams, alone, comprise over 50 percent of the over 200,000 miles of streams in EPA Region III, which encompasses most of the Bay watershed.[90] The Bay watershed's extensive headwater streams are important tributaries to downstream navigable waters, but they do not always flow year round; nor do they always flow above ground. Many EPA Region III first-order streams have intermittent flow periods during the summer months or during dry years.[91]

Headwater streams in the limestone or karst regions of the Bay watershed flow underground for some length before they re-emerge as surface streams some distance downstream. These types of streams have a definite hydrological connection to downstream traditionally navigable rivers, though the connection is not apparent by observing surface water flows exclusively.[92] Many Bay watershed headwater streams, as well as higher order non-navigable tributaries, have been channelized over time and incorporated into ditch and stormwater systems that connect non-navigable streams and adjacent wetlands to downstream waters.[93] Manmade ditches draining Bay watershed wetlands are nonetheless conduits of flow and pollutants downstream toward the Bay and are properly subject to the CWA.

Scientific Imperative for Defending Small Streams and Wetlands, American Rivers and Sierra Club, publishers (September 2003) (*Where Rivers Are Born*) at 10-11, *available at* http://www.americanrivers.org/site/DocServer/WhereRiversAreBorn1.pdf?docID=182 (last visited Nov. 1, 2010).

[89] *EPA Region III ANPRM Response* at Appendix E, Literature Review: Extent and Function of Headwater Streams, EPA, Wheeling West Virginia (February 2003) at 3-9; *see also Where Rivers Are Born* (describing in detail the important links between headwaters and downstream waters); Downing, D., et al., *Technical and Scientific Challenges in Implementing Rapanos' "Water of the United States,"* American Bar Association, NATURAL RESOURCES AND ENVIRONMENT, 42, Vol. 22, No. 1 (Summer 2007) at 43 (stating, "The small size of headwater streams means that, in such waters, more water is in direct contact with the streambed and its associated subsurface flows (hyporheic zone), where most processing [to remove pollutants] takes place. Thus, headwaters as a category can have a disproportionate positive effect on the integrity of downstream waters."); M.M. Brinson, *Changes in the Functioning of Wetlands Along Environmental Gradients,* 13 (2) Wetlands 65 (June 1993); Bruce J. Peterson, et al., *Control of Nitrogen Export from Watersheds by Headwater Streams*, 292 Science 86-90 (April 6, 2001).

[90] *EPA Region III ANPRM Response*, at 10, Appendix E at 3; *see also* Rhodes, C.A., EPA Region III, *Findings in the Mid-Atlantic Region Concerning Implications for Clean Water Act Jurisdiction for Various Interpretations of SWANCC,* presented to the ASWM Legal Workshop, Albuquerque New Mexico, October 18, 2005 (*EPA Mid-Atlantic Findings Presentation*), at 16, 20.

[91] *Id. See also* 2006 EPA State-by-State NHD Analysis of Stream Categories and Drinking Water Data estimating that 53 percent of the U.S. (except Alaska) stream miles are start reaches (headwaters) and 59 percent have intermittent or ephemeral flow. The start reach/headwater stream percentages for the Chesapeake Bay watershed states of NY, PA, MD, DE, and VA all range between 55 percent and 59 percent.

[92] *EPA Region III ANPRM Response*, at 4.

[93] *See* Council on Environmental Quality, *Environmental Trends* (1989) at 35 (estimating that 10 percent of perennial streams in the United States have been channelized); *Where Rivers Are Born,* at 11.

Approximately 1.7 million wetland acres remain in the Bay watershed.[94] Almost 90 percent (about 1.5 million acres) of these remaining wetlands are non-tidal, freshwater "palustrine" wetlands, including freshwater marshes, wet meadows, forested swamps, and bogs. Forested palustrine wetlands comprise the bulk of these freshwater wetlands. These are the freshwater wetlands most likely to be considered "adjacent" for CWA purposes because they are located next to but not within the banks of freshwater lakes, streams, or rivers. Some might be considered "isolated," though most of these are connected to surface waters by groundwater.[95] Over 36,000 of these palustrine wetland acres were destroyed between 1982 and 1989 alone.[96]

EPA Region III has estimated that roughly 36 percent of the Region's remaining wetlands are headwater wetlands.[97] About 12 percent of the Region's remaining wetlands are headwater wetlands that lack a perennial or intermittent surface water connection to traditionally navigable waters.[98] These Bay area headwater wetland habitats include bogs, fens, Delmarva Bays, eastern vernal pools, and pocosins.[99]

An estimated 35-39 percent of the wetland acreage in the U.S. Fish and Wildlife Service's Upper Delmarva Potholes (or Bays) study area was designated "isolated," though many of these wetlands were likely to have groundwater connections to streams.[100] In addition to groundwater connections, many headwater wetlands on the Delmarva Peninsula are connected to downstream waters by drainage ditches.[101] EPA Region III field studies show that "fully 73% of the assessed sites had groundwater pathways connecting them to downstream water bodies." Groundwater was frequently one of several hydrological sources linking downstream waters.[102]

Importantly, EPA's field studies also found that the interrelationships between wetlands with linkages by non-perennial surface and/or groundwater flows and their surroundings require on-site inspections because these complex linkages are not displayed on widely used mapping

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[94] *See* Tiner, R.W., *Trends in the Chesapeake Bay Watershed Wetlands,* U.S. Fish and Wildlife Service, Ecological Services, Hadley, MA,(derived from Tiner's estimate of 690,000 hectares remaining in 1989).

[95] *See* Hershner, Carl, et al., *Wetlands of Virginia: total, isolated and headwater,* Virginia Institute of Marine Science (VIMS) Special Report No. 03-1 (February 2003).

[96] *Trends in the Chesapeake Bay Watershed Wetlands, supra.*

[97] *EPA Region III ANPRM Response*, at 9-11; *see also EPA Mid-Atlantic Findings Presentation*, at 12-14.

[98] *Id.* These numbers likely underestimate the extent of headwater wetlands because National Wetland Inventory (NWI) maps underestimate wetland acreage and small headwater wetlands are the type most frequently missed by the NWI.

[99] *EPA Region III ANPRM Response*, Appendix I: Threatened and Endangered Species, at 1. The Delmarva bays are so named because of their location on the Delmarva Peninsula, the peninsula on the Eastern Shore of the Chesapeake Bay that includes all of Delaware, as well as parts of Maryland and Virginia.

[100] Tiner, R.W., et al, *Geographically Isolated Wetlands: A Preliminary Assessment of their Characteristics and Status in Selected Areas of the United States (Geographically Isolated Wetlands)*, U.S. Department of Interior, Fish and Wildlife Service, Northeast Region, Hadley, MA. (June 2002), at Section 2, Delmarva Potholes, Section 3, Region 5 Study Results.

[101] Ator, Scott W., et al. *Hydrologic and Geochemical Controls on Pesticide and Nutrient Transport to Two Streams on the Delmarva Peninsula.* U.S. Geological Survey, Scientific Investigations Report 2004-5051.

[102] *EPA Region III ANPRM Response*, Section IV, Case Study, at 1, 4.

and planning tools.[103] Consequently, while the great majority of Bay watershed headwater wetlands are connected hydrologically to downstream traditionally navigable waters, identifying these complex connections with precision in each case for regulatory purposes is often very time and resource intensive. Requiring regulators to definitively establish such a connection in each case prior to asserting jurisdiction unnecessarily complicates permitting, undermines CWA enforcement, and undermines the legitimacy and effectiveness of the Chesapeake Bay TMDL.

b. *Bay Watershed Wetlands and Non-navigable Streams Are Essential to Restoring and Protecting the Chesapeake Bay Region.*

Science has made clear that headwater streams and wetlands are crucial to the health of the Bay, and collectively have a significant nexus to the Bay and its navigable tributaries. In general, headwaters are important in achieving water quality and have enormous impacts on downstream waters, especially in light of climate change. For instance:

- Headwaters serve to reduce flooding by storing flood waters from rain events and snow melt, which will be increasingly important as major storm and flooding events increase;
- Headwaters recharge groundwater and replenish downstream flow, which will be increasingly important as water quantity and stream flow are stressed by increases in droughts and evaporation rates;
- By storing water, headwater wetlands moderate flow rates and can provide cooler waters to downstream streams and rivers, functions that will become increasingly vital as climate change places stresses on stream flow and causes temperatures in many waters to increase;
- Wetlands filter out harmful pollutants such as nutrients and pathogens, which will increase with increased intensity of storm events; and
- Small streams similarly have enormous potential to remove nutrients and other pollutants as water makes much more contact with the bed of the stream in smaller streams.

i. Bay Watershed Headwater Wetlands and Streams Filter Pollutants.

Chesapeake Bay's headwater wetlands and streams are essential tools in combating nutrient enrichment in the Bay because they absorb, filter, and recycle this pollution, preventing eutrophication.[104] Studies have shown that non-tidal wetlands near the Chesapeake Bay removed

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[103] *Id.*

[104] Carl Hershner et al., Center for Coastal Resources Management, *Wetlands of Virginia: total, isolated and headwater*, (February 2003) *citing, inter alia,* Peterjohn, W.T. and D.L. Correll, *Nutrient dynamics in an agricultural watershed: Observations on the role of a riparian forest,* Ecology 65(5): 1466-1475 (1984); *see generally* David K. Mueller & Dennis R. Helsel, *Nutrients in the Nation's Waters – Too Much of a Good Thing?*, U.S. Geological Survey Circular, No. 1136 (1996).

an estimated 89 percent of the nitrogen pollution and 80 percent of the phosphorus pollution that entered the wetlands through upland runoff, groundwater, and bulk precipitation.[105] In Eastern Maryland, concentrations of nitrate pollution have been found to decrease in watersheds with a prevalence of forested wetlands.[106] Wetlands restored in an agricultural area on the Delmarva Peninsula removed an average of 68 percent of nitrate nitrogen.[107]

As the Fourth Circuit explained in *United States v. Deaton*,[108] the filtering effect of wetlands is actually reversed, releasing trapped pollutants back into surface and groundwater, when wetlands are drained and developed. Protecting and restoring the Chesapeake Bay's wetlands and non-navigable tributaries is essential to reducing pollution downstream in the Chesapeake Bay and its major tributaries.

ii. Bay Watershed Headwater Wetlands and Streams are Essential for Pure Drinking Water Supplies.

In 2003, EPA Region III found that between 148 and 526 surface drinking water intakes, serving populations ranging from 535,000 to 3 million people, are located in non-navigable headwaters in Chesapeake Bay states.[109] Recent EPA data shows that in the Chesapeake Bay states of New York, Pennsylvania, Maryland, Delaware, and Virginia over 25 million people depend on public drinking water systems that rely on headwater, ephemeral, and intermittent streams.[110] The headwaters of the Potomac River and other Chesapeake Bay tributaries serve as a natural filter for drinking water, much like "a giant Brita."[111] Residents of the Delmarva Peninsula rely on ground water aquifers for drinking water and other water supplies, at least

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[105] *EPA Region III ANPRM Response*, at Appendix D, Literature Review: Character and Function of "Isolated Wetlands," U.S. EPA, Philadelphia, PA (2003) at 13-14 *citing* Peterjohn, W.T. and D.L. Correll (1984), *supra*); *see also,* Tiner, R.W. and D.G. Burke, *Wetlands of Maryland,* U.S. Fish and Wildlife Service, Ecological Services, Region 5, Hadley, MA and Maryland Department of Natural Resources, Annapolis, MD (1995) at 146-147 (the "riparian forest" in the 1984 Peterjohn and Correll study was later recognized to be part of a wetland continuum).

[106] Phillips, P.J. et al, *Effect of Forested Wetlands on Nitrate Concentrations in Ground Water and Surface Water on the Delmarva Peninsula*, 13 Wetlands 75-83 (1993).

[107] Jordan, T.E. et al., *Restored Wetlands in Crop Fields Control Nutrient Runoff* in *Nutrient Cycling and Retention in natural and Constructed Wetlands,* pp 49-60.

[108] 332 F.3d 698 (4th Cir. 2003), *cert. denied*, 541 U.S. 972 (2004).

[109] *EPA Region III ANPRM* comments at 7-8, Section II, GIS Highlights; *see* Drinking Water Intake Map, Appendix G; s*ee also EPA Mid-Atlantic Findings Presentation, supra,* at 8-11.

[110] EPA, Analysis of the Surface Drinking Water Provided by Intermittent, Ephemeral, and Headwater Streams in the U.S. (2009), at http://www.epa.gov/owow/wetlands/science/surface_drinking_water/index.html (last visited Nov. 1, 2010).

[111] Mary Battiata, *Silent Streams,* Washington Post (Sunday, November 27, 2005; W10).

some of which are vulnerable to contamination from pollutants discharged into headwater wetlands, streams, and ditches.[112]

Removal of the source water protection measures afforded by the CWA would increase risks to human health, and will require additional infrastructure expenditures by public utilities using surface water intakes.[113] For example, if CWA jurisdiction is removed for first order streams, untreated or partially treated municipal sewage or animal waste discharged upstream of a drinking water intake could contaminate water supplies with pathogens such as *Cryptosporidium* and *E.Coli* that are hardy and resistant to treatment. Many EPA Region III sewage treatment plants are located on first or second order streams. Unless these plants are closely regulated, these pathogens, routinely found in human sewage, can show up in finished tap water.[114] More generally, EPA estimated in 2006 that the Chesapeake Bay states of New York, Pennsylvania, Delaware, Maryland, and Virginia had 3,188 individual NPDES permitted discharge facilities known to be located on start reaches (headwater streams).[115] The present lack of clarity regarding federal jurisdiction over such waters impairs the ability of states and the federal government to monitor and control the level of discharges to these waters, unfairly burdens downstream states like Maryland (the Susquehanna) and Virginia (the Potomac), and undermines the potential efficacy of the Draft TMDL.

iii. Bay Watershed Headwater Wetlands and Streams Reduce Sediment Loads Downstream.

Chesapeake Bay watershed headwater streams and wetlands slow and hold run-off and sediment upstream, reducing channel erosion and sediment loads downstream. Sediment is a pollutant targeted by the Draft TMDL. Conversely, when headwater wetlands and streams are altered, they retain less sediment and send more sediment downstream.[116] Increased sediment loads downstream reduce water clarity and habitat quality.[117]

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[112] *See Hydrologic and Geochemical Controls, supra,* at Section 2, Delmarva Potholes.

[113] *Region III ANPRM Response* at 7.

[114] *Id.* at 8, 27.

[115] EPA State-by-State Analysis of Individual NPDES Permits on NHD Intermittent/Ephemeral and "Start Reach" Streams (2007) (over 1,800 of these were in Pennsylvania).

[116] *See* Herman, J., Hupp, C., and Langland, M., *Chapter 4. Watershed Sediment Deposition and Storage* in *A Summary Report of Sediment Processes in Chesapeake Bay and Watershed,* U.S. Geological Survey Water Resources Investigations Report 03-4123 (2003), at 43-45; *EPA Region III ANPRM Response* at 14-18, Appendix E at 7-9.

[117] *See* Chesapeake Bay Program, *General Info: Sediment* at: http://www.chesapeakebay.net/sediment.htm (last visited Nov. 1, 2010); U.S. EPA Region III, *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries*, EPA 903-R-03-002 (April 2003), ES at xii-xiii; Koroncai, Robert, et al., *Setting and Allocating the Chesapeake Bay Basin Nutrient and Sediment Loads: The collaborative process, technical tools, and innovative approaches,* EPA 903-R-03-007, U.S. EPA Region III Chesapeake Bay Program Office (December 2003) at ES, xiii.

Increased sediment loads from headwaters and smaller streams also adversely affect the navigability of downstream waters. Loss or lack of regulation of these important filtering areas will result in the need for more extensive and recurrent dredging.[118] For example, "keeping Baltimore Harbor navigable costs $10 to $11.5 million annually to dredge and dispose of sediment the Patapsco River [a Bay tributary] deposits in the harbor."[119]

iv. Bay Watershed Headwater Wetlands and Streams and Moderate Flood Flows.

Chesapeake Bay headwater wetlands and streams provide for the graduated release of surface and groundwater flows, holding back heavy surface water flows during storm events, and releasing base flow through groundwater during dry periods.[120]

The U.S. Fish and Wildlife Service study of the Delmarva Potholes (Delmarva Bays) reports:

> Given their abundance, Delmarva potholes aid in temporary storage of surface water and thereby help reduce local flooding. They alternately serve as ground-water discharge (wet season) and recharge (dry season) areas, with some recharge water eventually discharging into coastal plain streams and contributing to base flows vital for sustaining aquatic biota.[121]

Conversely, destruction of these headwater wetlands and streams will contribute to larger flood flows downstream,[122] and decreased base flow to streams, reducing water quality and harming aquatic flora and fauna.[123] Growth in storm sewers and paved surfaces around Watts Branch, Maryland more than tripled the number of floods and increased average annual flood size by 23 percent.[124]

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[118] *EPA Region III ANPRM Response*, at 8.

[119] *Where Rivers Are Born* at 12.

[120] *See e.g., EPA Region III ANPRM Response* at 14-18, Appendix D, at 10-13, and Appendix E at 7-9; *Where Rivers Are Born* at 10-11; Winter, T., *et al., Groundwater and Surface Water: A Single Resource,* U.S. Geological Survey Circular 1139, 67 (1998).

[121] Tiner, R.W., *Geographically Isolated Wetlands of the United States,* Wetlands, Vol. 23 (3), 494-516, at 505 (citations omitted); *see also Hydrologic and Geochemical Controls on Pesticide and Nutrient Transport to Two Streams on the Delmarva Peninsula, supra.*

[122] *See e.g., EPA Region III ANPRM* at 8, 16-18, Appendix E at 9 *citing* Meyer and Wallace (2001); *Where Rivers are Born,* at 10-11.

[123] *See EPA Region III ANPRM Response*, at 16-17, Appendix D at 14, Appendix E at 9; *Where Rivers Are Born* at 11; *Groundwater and Surface Water: A Single Resource, supra*, at 67.

[124] Meyers, J.L. and J.B. Wallace, *Lost Linkages and Lotic Ecology: Rediscovering Small Streams*, pages 295-317, at 307, *citing* Leopold, L.B., *A View of the River,* Cambridge, Mass: Harvard University Press, in M.C. Press, N.J. Huntly and S. Levin, editors, *Ecology: Achievement and Challenge*, Blackwell Science.

v. Bay Region Non-navigable Tributaries and Associated Wetlands Support the Bay Region's Fisheries and Shell-fisheries.

Non-tidal wetlands throughout the Bay watershed provide essential services to finfish and shellfisheries in the Chesapeake Bay. For example, Maryland's non-tidal wetlands support numerous fish (menhaden and striped bass) and shellfish (blue crabs and oysters) species, either directly by providing habitat, or indirectly by regulating freshwater flow and filtering pollutants. Approximately 200 fish species use Chesapeake Bay waters.[125] Maryland's non-tidal seasonal and temporarily flooded wetlands provide spawning, feeding, and nursery habitat for some freshwater fish species during flooding periods, and some also appear to be important in supporting the invertebrate food base for Maryland's riverine fisheries.[126] Bay watershed non-tidal wetlands and tributaries support a healthy freshwater sport fishery. In 2001, 367,000 resident and non-resident anglers fished in Maryland's fresh waters. Over 720,000 fished in Virginia's.[127]

The American eel is a commercially important fish species that relies on the upstream non-navigable tributaries of the Bay watershed. The eel lives most of its life in the inland reaches of these upstream waters and then goes to sea to spawn. The Bay area commercial harvest was about 700,000 pounds in 1981.[128] The Maryland commercial harvest was just over 192,000 pounds in 2002.[129] Loss of headwater streams due to unchecked development will eliminate essential eel habitat and will result in declining catch.

Bay headwaters and other non-navigable tributaries and associated wetlands provide essential water quality and quantity functions that support the Bay's striped bass, shad, and perch fisheries, among others, by regulating freshwater flow and filtering pollutants, helping protect critical spawning and nursery habitat for these species. The upper reaches of Bay tidal waters and the upper mainstem are used as spawning and nursery grounds for striped bass, shad, perch and other fish. The importance of this use is reflected in state and federal water quality standards that assign a "migratory fish spawning and nursery" designated use to these waters.[130]

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[125] *Wetlands of Maryland,* at 141.

[126] *Id.* at 141-142; *see also EPA Region III ANPRM Response*, Appendix E at 18.

[127] U.S. Fish and Wildlife Service, *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, 108 (2001), *available at http://www.census.gov/prod/2002pubs/FHW01.pdf* (last visited Nov. 1, 2010).

[128] *See* Chesapeake Bay Program, *Fish: American Eel* at http://www.chesapeakebay.net/baybio.htm (last visited January 10, 2006).

[129] Maryland's Commercial Fisheries Annual Landings Data Set: American Eel/Common Eel, at http://mddnr.chesapeakebay.net/mdcomfish/finfish/test2y1.cfm?Spcode=1141 (last visited Nov. 1, 2010).

[130] *See Ambient Water Quality Criteria*, *supra*; Chesapeake Bay Program PowerPoint Presentation at www.chesapeakebay.net/pubs/waterqualitycriteria/DOC-nspresentation.ppt at slide 28, 31. (last visited Jan. ??? 2010—site no longer available) EPA has published water quality standards for the Bay and tidal tributaries. Chesapeake Bay Program, at http://www.chesapeakebay.net/pubs/waterqualitycriteria/12022002/cover.pdf.

The major tributaries of the Bay support 70-90 percent of the striped bass spawned on the East Coast.[131] The 2002 commercial harvest in Maryland alone was over 1.8 million pounds.[132] Another important Chesapeake Bay commercial fishery is the menhaden fishery. This fishery is highlighted for protection in the Bay through the "open water and shellfish" designated use.[133] About 97 percent of the Bay area fish harvest is estuarine dependent.[134] In 2004, the Chesapeake Bay area harvest in Maryland and Virginia for all fish species was over 500 million pounds and was valued at over $209 million.[135]

Bay watershed headwaters and other non-navigable tributaries and adjacent wetlands support the Bay's world renowned shellfishery by reducing nitrogen and phosphorus pollution and sediment loads in downstream waters, and thereby fostering growth of submerged aquatic vegetation ("SAV") with increased water clarity and increases in dissolved oxygen from reductions in nitrogen and phosphorus pollution loads.[136] SAV provides essential habitat for immature and molting blue crabs.

Oyster and blue crab commercial harvests have declined since the 1970s due to the combined effects of several factors including pollution and the loss of SAV. Still, the Chesapeake Bay remains one of the world's largest producers of blue crabs. The Chesapeake region blue crab harvest in 2004 was 58.4 million pounds, worth over $44 million.[137] Currently, the combined value of the Chesapeake's shellfish and finfish harvests is estimated around $1 billion annually.[138] The Chesapeake Bay fisheries so central to the region's culture and economy are clearly placed in harm's way by the uncertainty of CWA protections upstream.

vi. Bay Region Wetlands and Non-navigable Streams Support Waterfowl and Other Migratory Bird Populations.

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[131] Chesapeake Bay Program, *Animals and Plants: Striped Bass* at http://www.chesapeakebay.net/striped_bass.htm (last visited January 8, 2010).

[132] Maryland's Commercial Fisheries Annual Landings Data Set: Striped Bass, at http://mddnr.chesapeakebay.net/mdcomfish/mdcomfishery.html (last visited Nov. 1, 2010).

[133] *See* Chesapeake Bay Program PowerPoint Presentation, *supra*, at slide 34.

[134] *See Ambient Water Quality Criteria*, *supra*; Chesapeake Bay Program PowerPoint Presentation, *supra*, at slides 28, 31.

[135] National Marine Fisheries Service, *Fisheries of the United States 2004*, Current Fisheries Statistics No. 2004, Silver Spring, MD (November 2005), at U.S. Commercial Landings, *available at* http://www.st.nmfs.gov/st1/fus/fus04/02_commercial2004.pdf (last visited January 8, 2010).

[136] *See Ambient Water Quality Criteria*, *supra*; *see also,* Chesapeake Bay Program PowerPoint Presentation, *supra*, at slides 32, 36.

[137] *Fisheries of the United States 2004*, *supra*, at Review, *available at* http://www.st.nmfs.gov/st1/fus/fus04/01_intro2004.pdf (last visited Nov. 1, 2010).

[138] Northeast Midwest Institute, *Large Scale Ecosystem Restoration Initiatives – Protecting and Restoring the Chesapeake Bay*, (2005) at "Ecosystem Users," at www.nemw.org/chesapeake.htm (last visited January 7, 2006).

The Chesapeake Bay watershed is home to 29 species of waterfowl and is a major resting ground along the Atlantic Migratory Bird Flyway.[139] At one time, millions of waterfowl spent their winters in the Bay region, supported by profuse SAV beds and supplemental diets rich in invertebrates. Many of the bird and waterfowl species identified in Maryland regularly use vegetated non-tidal wetlands, and a significant number of these depend on these habitats for survival.[140] The destruction of wetlands, and dramatic declines in SAV and water quality, among other things, have reduced the number of waterfowl in the Bay area to about one million birds.[141] Loss of SAV and non-tidal wetland habitat must be reversed to protect and restore the waterfowl and other migratory bird populations of the Chesapeake Bay watershed – and the entire Atlantic Migratory Bird Flyway.

5. *EPA Can and Must Regulate the Bay's Tributaries under Current Rules.*

EPA can and must establish categorical protection for tributaries covered under current rules. Still-applicable regulations of EPA and the Corps include tributaries of other specified regulated "waters of the United States," without qualification.[142] These regulations remain in effect.[143] Relevant Supreme Court law affirms that EPA still has ample basis to continue regulation of all tributaries in the Bay under current rules. The Supreme Court has never issued a holding limiting the jurisdictional status of tributaries. *Rapanos* involved water bodies that had been deemed jurisdictional under the provision of the Corps' regulations governing adjacent wetlands.[144] Likewise, *SWANCC* involved "isolated" ponds[145] and therefore the provision of the rules governing "other waters."[146] Neither case ruled on the legality of the separate regulatory provision providing for jurisdiction over tributaries.

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[139] *Wetlands of Maryland, supra*, at 142 (One third of all waterfowl using the Atlantic Flyway find winter habitat in the Chesapeake Bay and its wetlands); *see also,* Chesapeake Bay Program, *Waterfowl*, at http://www.chesapeakebay.net/waterfowl.htm (last visited Nov. 1, 2010); *Large Scale Ecosystem Restoration Initiatives – Protecting and Restoring the Chesapeake Bay*, *supra*, at "About the Ecosystem".

[140] *Wetlands of Maryland, supra,* at 142-144.

[141] *Id.*

[142] 40 C.F.R. § 122.2; 33 C.F.R. § 328.3(a)(5).

[143] Only the Eleventh Circuit has found that non-navigable tributaries must be regulated via a case-by-case application of the significant nexus test. *United States v. Robison, et al.*, 505 F.3d 1208 (11th Cir. 2007), *cert. denied*, 129 S. Ct. 627 (2008). No other circuit court – including any circuit with jurisdiction over Bay watershed states – has concluded that tributaries cannot be fully regulated under the current rules.

[144] *See Rapanos*, 547 U.S. at 730 (describing lower court decisions as upholding jurisdiction based on adjacency).

[145] *SWANCC*, 531 U.S. at 171.

[146] *See id.* at 174 ("We hold that 33 CFR § 328.3(a)(3) (1999) [the 'other waters' provision], as clarified and applied to petitioner's balefill site pursuant to the 'Migratory Bird Rule,' 51 Fed. Reg. 41217 (1986), exceeds the authority granted to respondents under § 404(a) of the CWA.").

A careful analysis of the various opinions in *Rapanos* reveals that a majority of the Supreme Court did not vote to limit the regulatory protection for tributaries. The dissent clearly does not call into question the regulation of tributaries.[147] Nor does Justice Kennedy assert categorical regulation of tributaries is no longer permissible.[148] Justice Kennedy only expresses concern about categorically extending jurisdiction to all *wetlands* that are adjacent to any waters that meet the regulatory definition of tributaries. Specifically, he writes:

> [T]he breadth of this standard – which seems to leave wide room for the regulation of drains, ditches, and streams remote from any navigable-in-fact waters and carrying only minor water volumes towards it – precludes its adoption as the determinative measure of whether wetlands are likely to play an important role in the integrity of an aquatic system comprising navigable waters as traditionally understood.[149]

Justice Kennedy further elaborated upon his position regarding the regulation of tributaries in a discussion pertaining to the concept of "ordinary high water mark" (OHWM) as an indication of the Corps' jurisdiction:

> This standard presumably provides a rough measure of the volume and regularity of flow. Assuming it is subject to reasonably consistent application, it may well provide a reasonable measure of whether specific minor tributaries bear a sufficient nexus with other regulated waters to constitute "navigable waters" under the Act.[150]

By contrast, Justice Kennedy said the existence of an OHWM in the tributary would not be a basis for finding a nexus for any adjacent wetland: "the breadth of this standard . . . precludes its adoption as the determinative measure of whether adjacent *wetlands* are likely to play an important role in the integrity of an aquatic system. . . ."[151] Thus, Justice Kennedy did not vote to upset the regulations' categorical protection for tributaries. As such, there is no

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[147] *Rapanos*, 547 U.S. at 788 (Stevens, J., dissenting) ("The Corps' resulting decision to treat these wetlands as encompassed within the term 'waters of the United States' is a quintessential example of the Executive's reasonable interpretation of a statutory provision.").

[148] Justice Kennedy's opinion limited his basis for remand to the lower court to the question of "whether the specific wetlands at issue possess a significant nexus with navigable waters." 547 U.S. at 787. This contrasts with the plurality's broader basis for remand to determine "whether the ditches and drains near wetlands are 'waters,'" and "whether the wetlands in question" are also jurisdictional. *Id.* at 757. This contrast is further indication Justice Kennedy would not require a case-by-case significant nexus determination for tributaries.

[149] *Id.*

[150] *Id.* at 781 (Kennedy, J., concurring) (citation omitted); *see also U.S. v. Evans*, 2006 WL 2221629, *18 (M.D. Fla. Aug. 2, 2006) (noting this aspect of Justice Kennedy's opinion).

[151] *Rapanos*, 547 U.S. at 781 (emphasis added).

majority decision that limits jurisdiction over such tributaries, and EPA may, and should, continue to fully regulate tributaries in the Bay watershed under the CWA.[152]

6. *EPA Can and Must Use the Significant Nexus Test to Categorically Protect the Bay Watershed's Wetlands that are Adjacent to Non-Navigable Streams.*

Justice Kennedy, in spelling out how the "significant nexus" standard should work in practice, intended for the agencies to have the ability to continue to protect wetlands when they collectively affect water quality, and to apply that protection to all similar water bodies across a significant region. His opinion says:

> [W]etlands possess the requisite nexus, and thus come within the statutory phrase 'navigable waters,' if the wetlands, either alone or *in combination with similarly situated lands in the region*, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'[153]

He further states that:

> Through regulations or adjudication, the Corps may choose to *identify categories of tributaries* that, due to their volume of flow (either annually or on average), their proximity to navigable waters, or other relevant considerations, are significant enough that wetlands adjacent to them are likely, in the majority of cases, to perform important functions for an aquatic system incorporating navigable waters.[154]

Finally, he notes that:

> Where an adequate nexus is established for a particular wetland, it may be permissible, as a matter of administrative convenience or

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[152] Since *Rapanos* was issued, some lower courts have – incorrectly we believe – applied the significant nexus to tributaries without any detailed explanation as to whether or not Justice Kennedy (or any other Justice) intended or would support such a result. *See, e.g., Robison, supra*, (in the context of criminal case, finding the government must demonstrate significant nexus between perennial, non-navigable stream and traditionally navigable water); *Environmental Protection Information Center v. Pacific Lumber Co.*, 469 F. Supp. 2d 803 (N.D. Ca. 2007) (finding that for intermittent and ephemeral streams, "substantial" nexus to downstream navigable waters must be demonstrated for CWA jurisdiction to attach). However, one court found Justice Kennedy's opinion "does not denigrate or even undercut the concept that a seasonal stream could be a water of the United States." *United States v. Moses*, 496 F.3d 984, 990 (9th Cir. 2007). The *Moses* court went on to further conclude that "the Supreme Court unanimously agreed that intermittent streams (at least those that are seasonal) can be waters of the United States." *Id.*

[153] *Rapanos*, 547 U.S. at 780 (emphasis added).

[154] *Id.* (emphasis added).

> necessity, to *presume covered status for other comparable wetlands in the region*.[155]

These important aspects of Justice Kennedy's opinion provide EPA ample basis to categorically protect headwater wetlands throughout the Bay watershed.[156]

Foremost, in determining whether wetlands have a "significant nexus" to traditionally navigable waters, Justice Kennedy, in his opinion in *Rapanos*, stressed the importance of examining the collective impacts of wetlands on traditionally navigable waters as well as the impact of an individual wetland on a traditionally navigable water. For instance, Justice Kennedy stated wetlands have a significant nexus to traditionally navigable waters when "*either alone or in combination with similarly situated lands in the region*" the wetlands significantly affect the chemical, physical, and biological integrity of traditionally navigable waters.[157] Similarly, he said it would be appropriate to presume, once a significant nexus was determined for a particular wetland, that other comparable wetlands in the region also have a "significant nexus" to traditionally navigable waters.[158]

Justice Kennedy's appreciation of the cumulative impacts smaller waters can have on traditionally navigable waters is apparent in a portion of his opinion where he described the hypoxia event in the Gulf of Mexico, in which the loss and degradation of countless small streams and wetlands in the Upper Mississippi basin have collectively contributed to increased nutrient levels in the Mississippi River that annually cause a dead zone in the Gulf which can approach the size of Massachusetts and New Jersey.[159] In that portion of his opinion, Justice Kennedy was concerned with aggregate effects on a relatively large regional scale.

While Justice Kennedy not did mention the Chesapeake Bay watershed, it would have been an equally apt example. Like the Gulf of Mexico, the Bay experiences an enormous annual dead zone caused by nutrient loading from upstream sources. In a typical year, the amount of nutrient loading entering the Chesapeake Bay and its rivers during the spring largely drives the size of the dead zone.[160] Nutrient loading of nitrogen and phosphorous in the spring causes summertime algal blooms that consume oxygen during decomposition and result in severe depletion (hypoxia) or even the complete absence (anoxia) of oxygen in the water column. These hypoxic areas are commonly referred to as "dead zones" because the low levels of oxygen are not sufficient to support aquatic life. "The natural factors that make the bay susceptible to

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[155] *Id.* at 782 (emphasis added).

[156] Justice Kennedy's opinion provides that wetlands adjacent to traditionally navigable waters are presumed to be protected without a case-by-case determination of significant nexus. *Id.* at 780-81. This is also EPA's position and we request that EPA maintain this correct position.

[157] *Id.* at 780 (emphasis added).

[158] *Id.* at 782.

[159] *Id.* at 777-8.

[160] Chesapeake Bay Foundation, *2008 State of Bay Report, available at* http://www.cbf.org/Page.aspx?pid=548 (last visited Nov. 1, 2010).

oxygen depletion include its deep central channel, which acts as a basin to contain the dense, low-oxygen waters; the bay's high ratio of watershed area to volume, leading to large nutrient exports from the watershed into a limited volume of receiving water; and high variability of freshwater flow."[161] Thus, nutrient loading from headwater wetlands and streams are a particularly important factor in the Chesapeake Bay dead zone. In fact, the dead zone in the Chesapeake Bay is among the worst in the nation, comprising more than of third of the entire Bay in July 2005, and is proportionately worse than that in the Gulf of Mexico based on watershed area and population.[162]

As explained above, science overwhelmingly demonstrates the cumulative significant impacts upper reach waters have on downstream water integrity generally and in the Bay watershed. Science shows that aggregating impacts for similarly situated wetlands demonstrates that such waters have a significant impact on the chemical, physical, and biological integrity of downstream navigable waters. As such, in accordance with Justice Kennedy's opinion, it is necessary to aggregate the impacts of such waters in the Bay to determine the true significance of their cumulative impact on downstream waters.[163] As importantly, doing so will show that CWA must categorically apply to these waters throughout the Bay's watershed.[164]

7. *EPA Must Apply Current Regulatory Provisions to Protect So-Called "Isolated" Waters in the Bay.*

As noted above, an estimated 35-39 percent of the wetland acreage in the U.S. Fish and Wildlife Service's Upper Delmarva Potholes (or Bays) study area was designated "isolated" (many of these wetlands were likely to have groundwater connections to streams). This figure suggests a significant percentage of Chesapeake Bay watershed wetlands could be deemed "isolated," and not subject to CWA protections, particularly if hydrological and biological connections are missed or discounted. Yet, as explained above, these so-called "isolated" wetlands play an important role in maintaining the integrity of downstream waters. As Justice Kennedy explained in *Rapanos*, "[g]iven the role wetlands play in pollutant filtering, flood control, and runoff storage, it may well be the *absence* of hydrologic connection (in the sense of interchange of waters) that shows the wetlands' significance for the aquatic system."[165]

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[161] Boesch, et al., at 3.

[162] *See* Bricker, S., et al, *Effects of Nutrient Enrichment In the Nation's Estuaries: A Decade of Change*, NOAA Coastal Ocean Program Decision Analysis Series No. 26 (2007).

[163] NWF believes that EPA can protect all important tributaries in the Bay under existing regulations. However, aggregation of similarly situated tributaries in the Bay would also clearly support an EPA decision to categorically protect all important tributaries in the Bay.

[164] Current regulations define adjacent wetlands to mean "bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like." 33 C.F.R. § 328.3(a)(3). This regulatory definition of "adjacent" was endorsed by Justice Kennedy and not disturbed by the *Rapanos* decision. 547 U.S. at 775. This regulatory definition should be used by EPA in making a watershed-wide, categorical determination to protect the Bay's headwaters.

[165] 547 U.S. at 786 (Kennedy, J., concurring).

EPA can and must assert jurisdiction over so-called "isolated" waters in the Bay based on existing regulations still in place that have not been overturned.[166] Additionally, while the *Rapanos* decision dealt with wetlands adjacent to certain non-navigable tributaries and there is no explicit ruling in *Rapanos* that would limit jurisdiction over other waters, Justice Kennedy gave strong indications that so-called "isolated" waters with a "significant nexus" to traditionally navigable waters are jurisdictional. In *Rapanos*, Justice Kennedy explicitly stated that it was his view that the holding of *SWANCC* imposed a "significant nexus" test to establish jurisdiction "under the circumstances presented" in *SWANCC*.[167] Since *SWANCC* concerned so-called "isolated" waters, it is logical to conclude that Justice Kennedy would find that such waters that do in fact possess a "significant nexus" to traditionally navigable waters are jurisdictional under the Act. Justice Kennedy's statement that waters may have the requisite "significant nexus" despite the lack of a hydrological connection to other waters further indicates that the significant nexus test he sets forth may apply to geographically isolated waters.

8. *EPA Can Make Region-Wide Jurisdictional Determinations on a Region-wide and Categorical Basis Using Special Case Authority.*

As stated above, EPA has "the final administrative authority" "to determine the reach of the term 'navigable waters'" under the CWA.[168] Given EPA's ultimate authority to determine the geographic jurisdictional scope of waters of the United States, the Corps and EPA set forth an agreement in 1989 (the 1989 MOA) setting up a process by which EPA may "special case" waters, declaring them to be covered under the CWA as "waters of the United States."[169] This power is broad, and it can be applied on a generic and regional basis. EPA, using the legal tools available in the *Rapanos* decision and in the current regulations described above, should exercise its special case authority to declare that headwaters and isolated waters in the Bay's basin are categorically protected under the CWA.

Pursuant to the EPA's "ultimate authority" and the Corps' role in administering the Section 404 permitting program, the agencies agreed in the 1989 MOA that while the Corps would "perform the majority of the geographic jurisdictional determinations," the "EPA will be considered the lead agency and will make the final decision if the agencies disagree."[170] The

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[166] 33 C.F.R. § 328.3(a)(3); 40 C.F.R. § 122.2. It should be noted that the Fourth Circuit has found regulation of waters under this regulatory provision to be impermissible. *United States v. Wilson*, 133 F.2d 251 (4th Cir. 1997).

[167] *Rapanos*, 547 U.S. at 759 ("In *Solid Waste Agency of Northern Cook Cty. v. Army Corps of Engineers,* 531 U.S. 159, 121 S. Ct. 675, 148 L.Ed.2d 576 (2001) *(SWANCC)*, the Court held, under the circumstances presented there, that to constitute "'navigable waters'" under the Act, a water or wetland must possess a 'significant nexus' to waters that are or were navigable in fact or that could reasonably be so made.").

[168] 43 US Op. Atty. Gen. 197 (Sep. 5, 1979).

[169] Environmental Protection Agency & U.S. Army Corp of Engineers, *Memorandum of Agreement between the Department of the Army and the Environmental Protection Agency Concerning the Determination of the Section 404 Program and the Application of the Exemptions Under Section 404(F) of the Clean Water Act*, at § I (Jan. 19, 1989).

[170] *Id.* at § II.

1989 MOA allows EPA to use "special case" authority "where EPA makes the final determination of the geographic jurisdictional scope of waters of the United States."[171]

Special case authority gives EPA near plenary power to make final decisions not just about specific jurisdictional determinations, but also about decisions related to specific guidance, interpretations of guidance or regulations, or other decisions affecting any jurisdictional question.[172] Special cases may be designated as "project-specific" or "generic" "where significant issues or technical difficulties are anticipated or exist, concerning the scope of waters the United States for purposes of Section 404 and, where clarifying guidance is likely to be needed."[173] It further allows that "*[g]eneric special cases will be designated by easily identifiable political or geographic subdivisions*" – like, for instance, the Chesapeake Bay watershed.[174] Thus, EPA can make special case determinations "generically" without a specific project, and can do so on a regional or geographic basis.

This authority neatly coincides with tools provided in Justice Kennedy's opinion to give EPA ample latitude to categorically protect certain waters throughout the Bay's watershed. Moreover, given that special case authority can be exercised generically, EPA can bring about such protections without a specific project or applicant request for a jurisdictional determination and could certainly do so in the context of the TMDL.

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[171] *Id.* at § III(A).
[172] *Id.* at § III.
[173] *Id.* at §III(A)
[174] *Id.* (emphasis added).

Conclusion

We again thank you for the opportunity to comment on the Draft TMDL. Please contact us with any questions you might have regarding our comments. We would welcome the opportunity to discuss these issues with you.

Sincerely,

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